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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/647,489	09/29/2000	Hidetoshi Saito	216-415P	8093

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BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER

SAVAGE, JASON L

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 11/04/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

06015

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/647,489	SAITO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jason L. Savage	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION:

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

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***Specification***

1. The amendment filed 8-13-03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Applicant's changing the term "weighted average" to "average" is considered new matter since Applicant fails to disclose any support why one of ordinary skill would understand the specification to be referring to the average as opposed to the "weighted average" other than by stating that it was an inadvertent error. Absent such support, the change is deemed to be new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one

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skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant's changing the term "weighted average" to "average" is considered new matter since Applicant fails to disclose any support why one of ordinary skill would understand the claims to be referring to the average as opposed to the "weighted average" other than by stating that it was an inadvertent error. Absent such support, the change is deemed to be new matter.

***Claim Rejections - 35 USC § 102/103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-2 and 6 are rejected under 35 U.S.C. 102(B) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hijikihigawa et al (US 5,140,393).

Hijikihigawa teaches a sensor device which has a surface shaped to exhibit improved performance (col. 1, ln. 11-24). Hijikihigawa further teaches that by increasing the surface area of the sensor, it will exhibit enhanced detection sensitivity (col. 5, ln. 56-60). The increased surface area is provided by forming metal oxide projections such as tin oxide in various shapes such as trapezoidal, pyramidal, conical or semispherical (col. 4, ln. 53 - col. 5, ln. 14) and the projections are shown to be substantially oriented in a parallel direction (Figure 1(a)).

Hijikihigawa also teaches that the projections can be suitably sized so as to have a specified shape and dimensions (col. 5, ln. 46-55).

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Regarding the limitation that the needles are single crystals, Hijikihigawa teaches it is desirable to use single crystal material which anticipates the claim limitation of using single crystal (col. 5, ln. 68 - col. 6, ln. 2). In the alternative, it would have been obvious to one of ordinary skill in the art at the time of the invention to have used single crystal needles since it is explicitly recited as being suitable for use in the device of Hijikihigawa.

Hijikihigawa is silent to the diameter and density of the projections; however it does teach that the distance  $d$  as shown in Figure 1(a) can be from 0.1 to several micrometers (col. 5, ln. 25-28). This is taken as a teaching that the projections have dimensions on the same scale and thus would meet the limitation of having diameters less than 10,000  $\mu\text{m}$  and a whisker density within the claimed range.

Regarding the claimed aspect ratio of 0.1, the projections in Figure 1(a) appear to be just as high as they are wide and thus would meet the claim limitation. Furthermore, Hijikihigawa teaches that it is advantageous to maximize the surface area of the sensor (col. 5, ln. 56-60). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed the oxide whiskers of Hijikihigawa with as large of an aspect ratio as possible in order to maximize the surface area of the sensor.

Regarding claim 2, it is the position of the Examiner that the substrate material to which the whiskers of Hijikihigawa are bonded is a substance which secures the whiskers together. Hijikihigawa teaches that the substrate may be an inorganic substance such as glass or ceramic (col. 4, ln. 53-59).

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6. Claims 3-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hijikihigawa et al (US 5,140,393).

Hijikihigawa teaches what is set forth above but is silent to the formed structure being used as an emission element, capacitor element, memory element, laser emission element and optical switch, these recitations are at best statements of intended use. Statements of intended use are not considered patentable distinguishing limitations. See Ex parte Masham 2 U.S.P.Q. 2D 1647, 1648. In re Tahuau 135 F.2d 344, 47 U.S.P.Q. 324. Application of Hack, 245 F.2d 246, 114 U.S.P.Q. 161. Therefore, the intended use statements recited in claims 3-5 and 7-8 do not patentably distinguish the present invention from the prior art. Furthermore, as was admitted by Applicant on pages 24-25 of the Amendment filed 8-13-03, it is well known that since crystal needles have desirable properties which find use as laser emission elements.

#### ***Response to Arguments***

7. Applicant's arguments filed 8-13-03 have been fully considered but they are not persuasive.

Applicant argues on page 28 of the Amendment filed 8-13-03 that while Hijikihigawa discloses single crystals, it does not teach that they are necessary. Applicant further asserts that single crystal is very important to the present invention on page 24 of the Amendment. This argument is not persuasive since Hijikihigawa explicitly recites single crystals as being suitable for use in the device which anticipates and/or obviates the claims. Furthermore, while Applicant

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teaches that single crystal is an especially preferred embodiment, he also fails to disclose that single crystals are necessary.

Applicant further argues on page 28 that Hijikihigawa does not provide any examples containing single crystals and asserts that it would be impossible to form crystalline materials from the methods recited in the Working Examples of Hijikihigawa. These arguments are not persuasive since the reference must be considered as a whole and is not limited to information which is supported by Experimental data just as Applicant is not limited to claiming only the specific data points which are taught in the examples. As was recognized by Applicant, the reference explicitly teaches that single crystals are suitable for use in the device of Hijikihigawa. Furthermore, it would have been within the level of one of ordinary skill in the art to have implemented a method capable of forming single crystal needles in order to form the device of Hijikihigawa. One would have been motivated to form single crystal needles in the device since Hijikihigawa explicitly recites that they are suitable for use in the sensor.

***Allowable Subject Matter***

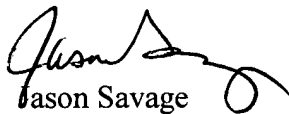
8. Claims 9-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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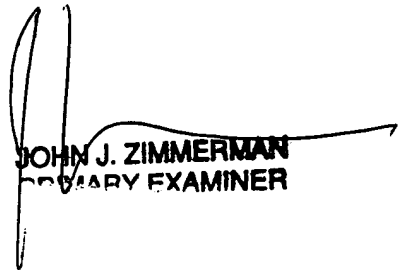
9. Any inquiry to this communication or earlier communications from the Examiner should be directed to Jason Savage, whose telephone number is (703)305-0549. The Examiner can normally be reached Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on (703)308-3822.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)308-2351.

  
Jason Savage

10-27-03

  
JOHN J. ZIMMERMAN  
PRIMARY EXAMINER